ENERGY POLICY UPDATE

February 10, 2015

Governor's Office of Energy Policy

The Energy Policy Update Electronic Newsletter is published by the Arizona Governor's Office Of Energy Policy and is provided free of charge to the public. It contains verbatim excerpts from international, domestic energy, and environment-related publications that are reviewed by Community Outreach Personnel. For inquiries, call 602-771-1143 or toll free to 800-352-5499. To register to receive this newsletter electronically or to unsubscribe, email Gloria Castro.

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UPCOMING WEBINARS

NEW! Western Governors' Drought Forum Webinar Series: Feb. 11, Feb. 25, Mar. 11, Mar. 25, & Apr. 8 – Click here for more information or to register.

ENERGY STAR Webinars

U.S. Dept. of Energy Tribal Renewable Energy Webinar Series

U.S. Dept. of Energy Webinars

February 12: HIGH PERFORMANCE ENCLOSURE

Like our Facebook page! Learn more about energy in Arizona, get daily posts on a variety of energy topics and use the Comment Section to tell us what you think or ask questions of our energy experts.

The Arizona Republic now has limited access. As such, links may or may not work.

ARIZONA-RELATED

Apple Turning Closed Arizona Facility into Data Center

[Associated Press, Feb. 2] – Tech giant Apple said Monday it will invest $2 billion over 10 years to open a data center in the Phoenix suburb of Mesa that will be the company's fifth in the U.S. and serve as a control facility for the other four. The announcement comes four months after an earlier Apple plan for the 1.3 million-square-foot facility it bought in 2013 failed. Apple had a deal with Merrimack, New Hampshire-based GT Advanced to use the plant to make sapphire glass for its products, but the company declared bankruptcy in October after production issues developed. GT openly accused Apple of using a "classic bait-and-switch strategy" with a deal that he called "massively one-sided." Apple lawyers accused the GT of making false statements about the deal, among other allegations. After the GT failure, Apple said it would work to find another use for the plant. It also has been working to help more than 600 GT employees who lost their jobs. "This multi-billion dollar project is one of the largest investments we've ever made, and when completed it will add over 600 engineering and construction jobs to the more than one million jobs Apple has already created in the U.S.," Apple said in a statement. "Like all Apple data centers, it will be powered by 100 percent renewable energy, much of which will come from a new local solar farm." An Apple spokesman said construction on the new data center should start late next year, if not earlier. GT is storing advanced furnaces it planned to use in its Apple venture at the plant while the furnaces are being liquidated, delaying the immediate use of the plant. Apple company expects 150 permanent workers at the site, in addition to construction crews and contractors.

Arizona Gas Prices on the Rise

After a four-month slide, Arizona gas prices are on the rise.

[Arizona Republic, Feb. 5] After a four-month slide, Arizona gas prices are on the rise. The average price of gas jumped 7 cents in one week to $1.98 per gallon of regular gas, according to AAA Arizona. "The 100-plus days of plummeting pump prices came to an end this week," the report said. Arizona gas prices rose a penny from Wednesday, according to AAA. Nationally, the report said, gas prices rose more than 10 cents in one week to $2.15. Arizona prices are still lower than a month ago, when they were $2.12 for a gallon of regular gas, and they are down substantially from a year ago, when they were $3.24 a gallon, according to the report.

Arizona Ranks 10th in Green Building

[Phoenix Business Journal, Feb. 4] Arizona went green in 2014, placing 10th in the US Green Building Council's annual Leadership in Energy and Environmental Design certification rankings. For the first time, Arizona made the council's list, which ranks states based on the per-capita square footage of LEED-certified spaces built last year. To earn LEED certification, buildings are evaluated in categories such as materials, water and energy efficiency, sustainability and location. Projects accrue points in each criteria for meeting LEED standards and must earn at least 40 points to be considered certified. The highest LEED rank is Platinum, which requires 80 points to attain. According to the USGBC, 82 Arizona projects were LEED certified in 2014, totaling around 11.2 million square feet. The state tied for 10th with New York at 1.74 square feet per-capita of LEED-certified space.

STRATEGIES, PART I: UNVENTED ROOF SYSTEMS & INNOVATIVE ADVANCED FRAMING STRATEGIES

Click here to register.

February 17: LIVE WEBINAR ON MATERIAL HANDLING FUEL CELLS FOR BUILDING ELECTRIC PEAK SHAVING APPLICATIONS

Click here to register.

February 18: LIVE WEBCAST ON THE GEOGRAPHY OF ALTERNATIVE FUELS

Attend webcast. (No advance registration required. During the call, dial 888-807-9760 & use audio participant passcode 4990436. Log in to the website & use conference number PW1383510 & participant passcode 4990436.)

February 18: NATIONAL DEVELOPMENT SITING CONSIDERATIONS

Webinar Sponsor: WINDExchange

Click here to register.

March 3: ENERGY EFFICIENCY IN THE FRANCHISE: BEST PRACTICES FROM BETTER BUILDINGS FRANCHISORS

Click here to register.

2015 UPCOMING EVENTS

Energy, Utility & Environment Conference (EUEC) 2015
Feb. 16-18 San Diego, CA

Solar Energy International Solar PV 101 Training
Feb. 16-20 Tucson, AZ

Sustainability Solutions Festival
Feb. 16-21

GreenBiz Forum 2015
Feb. 17-19 Phoenix, AZ

NEW! VerdeXchange Arizona 2015
Feb. 18-20 Phoenix, AZ

RES Las Vegas
Mar. 9-12 Las Vegas, NV

Natural Gas Vehicles + Infrastructure
Mar. 10-11 Phoenix, AZ

GLOBALCON Conference & Expo
Mar. 17-18 Philadelphia, PA

Arizona's Stealth Solar Owners Admit Fraud

[Arizona Republic, Feb. 9] Owners of a Phoenix solar company that promised customers new energy systems wouldn't cost them "one cent" and would save "tons of money" have agreed to pay thousands in fines to settle a consumer fraud lawsuit. Stealth Solar owners Fred and Sandra Richie acknowledged the company illegally advertised services through deceptive telemarketing, bogus mailers, untrue promises of savings and government subsidies. The Richies will pay up to $92,000 in restitution to customers they deceived and $20,000 in attorney's fees as part of a consent agreement with the Arizona Attorney General's Office. They also face $160,000 in civil penalties if they fail to make restitution to customers. The attorney general sued Stealth in 2014 after receiving 50 consumer complaints against the company. Customers not only said they didn't save money, some saw utility rates rise due to the cost of equipment. "We thank those customers who came forward to voice their concerns about this company," Attorney General Mark Brnovich said in a statement last week. "Our attorneys want to know about false advertising. With that information we can hold companies accountable for deceiving consumers." Brnovich took office in January. Stealth customers weren't just calling the attorney general with concerns. They also contacted Call 12 for Action, saying Stealth failed to honor contracts, that energy systems failed to deliver savings and that company officials made promises to send rebates that never arrived.
Phoenix resident Ethan Sims said he tried for months to get a $1,000 refund check from the company that never arrived. He said Stealth managers told him in January that the check was in the mail. When he called back again, the company's phone number had been disconnected. Stealth Solar sold solar electric energy systems in Arizona, California and Hawaii from 2010 to 2014, when it closed. The company also marketed aerosol, barrier and film systems to homeowners.

Environmentalists Take Aim at TEP's San Juan Generating Station

[Fierce Energy, Feb. 5] A coalition of Arizona community groups and businesses, including the Sierra Club, Sustainable Tucson, and 350.org Tucson, are calling on Tucson Electric Power (TEP) to divest from the out-of-state coal-fired San Juan Generating Station, and instead to commit to local, clean energy solutions like rooftop solar. Over the past few weeks, support for continued burning of coal at the San Juan Generating Station has gone down as the Public Service Company of New Mexico's (PNM) has revealed financial risks for the future of the plant. Earlier this month, Farmington, New Mexico, where the plant resides, abandoned its plans to acquire an increased portion of the plant due to reliability concerns and excessive costs. Other New Mexico stakeholders have also pulled away from an agreement that would continue PNM's use of coal at the plant, citing the overall uncertainty about San Juan's operations. TEP owns half of one unit of the plant, which presents huge financial risks to local Tucson ratepayers if the utility continues its investment in the expensive, outdated coal-fired power plant, according to the coalition.

Hundreds Crowd Tempe SRP Meeting, Protest Increases

[Arizona Republic, Feb. 10] An overflow crowd of 500 people poured into an SRP meeting hall Monday morning in Tempe, the overwhelming majority of them protesting the utility's plan to jack up costs for solar customers. SRP also plans to raise rates about 4 percent for the typical residential electric customer. Monday's hearing in Tempe is the second-to-last meeting before the utility board votes on the rate increases Feb. 26. SRP says it has to recover from solar customers the roughly $50 per month cost of serving them on the electric grid. Solar customers say the plan would sharply decrease their monthly savings on electricity. They also accuse SRP of rewriting solar rules in a way that makes their homes less valuable in resale.

Mine Tales: Nonmetals A Valuable Resource in N. Ariz.

[Arizona Daily Star, Feb. 8] While Southern Arizona is known for its porphyry copper deposits, Northern Arizona is better known for its nonmetallic commodities, including basalt, helium, potash and carbon dioxide (CO_2). More than 600 cinder cones comprise the 1,800-square-mile San Francisco Volcano Field and its south-central edge of Flagstaff in Coconino County. Created by strombolian (low-level) eruptions over the past 6 million years, the San Francisco Volcanic Field includes Sunset Crater, the state's youngest volcano and most recent example of an eruption that occurred 1,000 years ago. The area is known for its commercial production of scoria, a volcanic rock composed of basalt and andesite. These fine-grained, dark-colored, igneous rocks make up the cinder cones, which average 1,000 feet in height and a half-mile in diameter at the base. The Atchison, Topeka & Santa Fe Railway Co. quarried and stockpiled basalt at Winona for use in railroad ballast, concrete aggregate and cinder block. Sheep Hill, a

Balance-Unbalance Int'l. Conference; Water, Climate, Place: Reimagining Environments
Mar. 27-29 Tempe, AZ

Arizona Science & Engineering Fair
Apr. 7-9 Phoenix, AZ

Tribal Economic Outlook Conference
Apr. 9 Flagstaff, AZ

Solar Summit 2015
Apr. 14-15 Phoenix, AZ

Utility Solar Conference
Apr. 27-29 San Diego, CA

CxENERGY 2015 Conference & Expo
Apr. 27-30 Las Vegas, NV

Alternative Clean Transportation (ACT) Expo
May 4-7 Dallas, TX

NARUC Utility Rate School - Western
May 11-15 San Diego, CA

Solar Power Generation Mexico
May 19-20
World Trade Center, Mexico

Better Buildings Summit
May 27-29 Washington, DC

Energy Efficiency Finance Forum
May 31-Jun. 2 San Francisco, CA

Industrial Energy Tech. Conference 2015
Jun. 2-5 New Orleans, LA

33rd West Coast Energy Mgmt. Congress
Jun. 3-4 Long Beach, CA

14th Annual Small Business Forum & Expo
Jun. 16-18 Phoenix, AZ

ASHRAE Annual Conference
Jun. 27-Jul.1 Atlanta, GA

ACEEE Summer Study on Energy Efficiency in Industry
Aug. 4-6 Buffalo, NY

Energy Efficiency Exchange: Federal Training & Knowledge
Aug. 11-13 Phoenix, AZ

Solar Power Int'l. 2015
Sep. 14-17 Anaheim, CA

large volcanic cone on the east side of Flagstaff, hosts a cinder pit mining operation clearly defined by the impacted disturbance on its western flank. Its colorful striations dominate the landscape, and its product is used to provide traction on winter roads and as a decorative landscape material. Helium, a light inert gas, has many uses, including as an inert shield for arc welding and for pressuring rockets and missiles. Located in the Holbrook Basin and the Four Corners area, concentrations of helium vary from trace amounts to up to 10 percent. Commercial concentrations average above 0.3 percent. As the first commercially produced gas in Arizona, notable helium fields include Pinta Dome, 35 miles northeast of Holbrook, and the nearby Navajo Springs and East Navajo Springs fields. The Teec Nos Pos oil and gas field also produced helium in 1968. Today's declining federal helium reserves may bring about renewed exploration and development of helium in Northeastern Arizona. A major byproduct of helium production, carbon dioxide (CO_2), was discovered in 1994 in several wells between St. Johns and Springerville. Liquid CO_2 is processed by a local plant and distributed for use in Arizona's beverage industry.

Sustainability – One Building at a Time

[ASU News, Feb. 4] The first thing that many people picture when they hear the word "city" is a glittering, glass-and-metal skyline. While cities are many things, they always include a collection of buildings. Houses, office parks, skyscrapers, restaurants – the urban environment is a study in construction lined up and framed against the sky. It makes sense, then, that a key step toward creating a more sustainable city might be to create more sustainable buildings. The U.S. Environmental Protection Agency (EPA) defines sustainable building as "the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction." A number of researchers at Arizona State University have turned their attention to making buildings more sustainable – both environmentally and for human health. They are figuring out how to improve the design of buildings in order to save energy, use materials with less negative impact and get one step closer to that elusive "sustainable" label.

Tesla Again Pushes Bill To Bypass Arizona Car Dealers

[Arizona Republic, Feb. 3] Supporters of Tesla Motors and its showy electric cars are heading to the Arizona Capitol on Wednesday to press lawmakers to allow the automaker to directly sell its vehicles here, reigniting a battle with auto dealers who want sales to pass through them. House Bill 2216 would effectively upend the decades-old system that prohibits manufacturers from competing with dealerships through direct sales. Tesla is pushing a bill similar to one that failed a year ago in hopes that a new governor and Legislature are more open to what it sees as free-market principles. Standing in the way are the state's car dealers, a group that directly employs about 24,000 Arizonans and accounts for $2 billion in sales taxes, a crucial element of the state's revenue. They see Tesla as seeking an exception that would allow it to establish monopoly powers that threaten the state's broader economy. For Tesla owners like Mark Rohde, the issue is one of personal convenience. "As a consumer, I don't need a dealer to take care of me. I don't need a middle man," the 64-year-old North Scottsdale resident said. "If you believe in free-market economies, then you better get behind free-market economies." Rohde, a psychologist who is driving his second Tesla, which he bought online, plans to testify about his experience with the car company at the hearing.

Wind: Arizona's Overlooked Energy Source

[Arizona Republic, Jan.30] Into the Mind: The Super Bowl is being powered by wind energy. Industry consultant Amanda Ormond explains why this renewable energy source is growing. http://www.azcentral.com/story/opinion/op-ed/2015/01/30/wind-energy-arizona/22526867/

ALTERNATIVE ENERGY & EFFICIENCY

Comed Kicks Off Smart Grid Streetlights Program

[Electric Light & Power, Feb. 4] Commonwealth Edison Co. (ComEd) began a pilot program to deploy smart, energy-efficient LED streetlights in two Chicago suburbs, Bensenville and Lombard. Through this pilot, ComEd is replacing about 800 ComEd-owned fixtures in Bensenville and Lombard combined. The smart streetlights use the communications network ComEd installed as part of its smart grid investments. Like smart meters, the energy efficient streetlights tap into a wireless network that allows for two-way communication with grid operators. Via a web portal, municipalities will be able to control the dimming and daily scheduling of the lights, and receive immediate notification if a lamp is in need of maintenance.

ACEEE National Conference on Energy Efficiency as a Resource
Sep. 20-22 Little Rock, AR

World Energy Engineering Congress (WEEC)
Sep. 30-Oct. 2 2015 Orlando, FL

Greenbuild Int'l. Conference & Expo
Nov. 18-20 Washington, DC

Renewable Energy World Conference & Expo
Dec. 8-10 Las Vegas, NV

ASU Sustainability Series Events

Green Building Lecture Series
Scottsdale, AZ

Additionally, control can be given to first responders to manage streetlights on-demand during emergency situations. The LED streetlights, which consume as little as one-third of the energy, last up to one and a half times as long and offer better quality of light compared with the fixtures they replace. These fixtures are also equipped with a digital node that keeps precise track of each light fixture's energy usage. This could eventually allow the utility to bill for the actual energy used by the streetlights, rather than charging a calculated flat rate, as is typical in municipalities across the nation. Four years after installing similar lights, the city of Los Angeles shaved more than 63 percent off its electricity bill and crime decreased in areas where LEDs were installed.

RMI Enlists Ebay, GM, HP To Help Double Corporate Renewables by 2025
[GreenBiz.com, Feb. 5] E-commerce giant eBay, already a user of renewable energy from providers including SolarCity, has joined a new Rocky Mountain Institute initiative to ramp up corporate clean energy buying. Two-thirds of the Fortune 100 want to buy electricity generated by off-site renewable energy sources this year — or at least that's what they're saying publicly. The problem: the procurement process is complicated, and only a half-dozen big businesses actually have signed purchase orders, including Google, IKEA, Mars, Microsoft and Walmart. Yes, these companies and others have gotten creative about on-site renewables investments, but that's a subject for another day. To truly make an impact, they need access to far more renewable energy generating sources. Against that reality, Rocky Mountain Institute (RMI) hopes to add far more names to that list with this week's launch of a new Business Renewables Center (BRC), which aims to make the procurement process more straightforward. Aside from RMI, the new center will be supported by three other organizations involved in the broader Corporate Renewables Partnership that began brewing about two years ago: World Wildlife Fund, World Resources Institute and BSR. The collective goal by 2025: add 60 gigawatts of wind and solar capacity to the amount purchased by businesses. That's roughly double today's total. To get there will take about 600 corporate power purchase agreements (PPAs), covering 100 megawatts.

Two New PSE&G Landfill Solar Farms in Service
[Electric Light & Power, Feb. 5] Public Service Electric and Gas Co. PSE&G recently put two new landfill solar power farms in service as part of the utility's Solar 4 All program. The 10.14 MW-dc Parklands Solar Farm in Bordentown, New Jersey and the 11.18 MW-dc Kinsley Solar Farm in Deptford, New Jersey were brought online in late-December 2014 and will supply enough grid-connected solar energy to power about 3,500 average-size homes annually. These are the two largest centralized solar projects built to date by PSE&G, creating a portfolio of 26 solar farms and 174,000 pole-attached solar units that supply more than 101 MW-dc of electricity.

Why Aren't There More Solar-Covered Carports?
[Energy Manager Today, Feb. 2] Between 35 and 50 percent of most American city surfaces are covered with pavement. All of that pavement retains heat, contributing to what is known as the urban heat island effect. About 40 percent of the average city's pavement is taken up by parking lots, so covering parking to alleviate some of that heat seems like a good idea. According to an article in the Washington Post, covering those lots with solar panels seems like a no-brainer. Not only do solar-covered parking lots make for cooler cars and contribute to increased vehicle fuel efficiency, depending on the size of the array, such a carport could generate a lot of energy. And while there are solar carport installations out there, they aren't by any means plentiful. According to a study released by GTM Research last year, by the end of 2014, there were an estimated 600 MW worth of solar canopies in the United States. So why aren't there more of them? The main reason is that such systems are very expensive to build. In fact, according to truSolar, which assess the financial risks of solar PV projects, solar carports are the most expensive type of system to build. The economics of installing solar canopies also varies by state. The GTM Research report found that carport solar installations are primarily happening in states that offer financial incentives to support their development, such as Arizona, New Jersey, Maryland, Massachusetts, New York and California.

ENERGY/GENERAL

Energy-Pinching Americans Pose Threat to Power Grid
Sluggish Sales Could Deprive Utilities of Revenues to Maintain Vast Network of Generating Plants and High-Voltage Lines
[Wall Street Journal, Feb. 2] The long-term future of the nation's electric grid is under threat

from an unlikely source—energy-conserving Americans. That is the fear of some utility experts who say that as Americans use less power, electric companies won't have the revenue needed to maintain sprawling networks of high-voltage lines and generating plants. And if the companies raise rates too high to make up for declining sales volumes, customers will embrace even more energy-saving gizmos and solar panels, pushing down demand for grid power. The Edison Electric Institute, the trade group for investor-owned utilities, has warned that they could face a "death spiral." "Utilities seem to have concrete shoes on," says Elisabeth Graffy, co-director of Arizona State University's Energy Policy, Law and Governance Center. Since 2004, average residential electricity prices have jumped 39%, to 12.5 cents a kilowatt-hour and prices for all users have jumped 36% to 10.42 cents, according to the U.S. Energy Information Administration. Retail sales to homes and businesses still are less than they were in 2007, before the recession.

Gas Prices Rise for 15th Straight Day

Tuesday's national average is still more than $1 less year-on-year.

[UPI.com, Feb. 10] WASHINGTON – The national average retail price for a gallon of regular unleaded gasoline in the United States has increased for 15 consecutive days, AAA data show Tuesday. Oil prices in the United States were in a free fall last year and in early 2015, with the national average price flirting with the $2 per gallon mark. A national average price for Tuesday of $2.18 per gallon is about a penny more than Monday and 12 cents more than one week ago. AAA notes gasoline prices usually turn the corner at the beginning of February as refineries enter a period of seasonal maintenance.

Natural Gas Shale Drillers Undaunted by 32% Price Plunge

[Bloomberg, Feb. 5] U.S. natural gas production is poised to reach a record for a fifth year as shale drillers boost efficiency, driving prices toward a low of more than a decade. Output will rise 3.2 percent in 2015, led by gains at the Marcellus formation, the nation's biggest shale deposit, according to the Energy Information Administration. Marcellus production will increase 2.8 percent through February after a 21 percent gain in 2014, a year when prices tumbled 32 percent. Producers in Pennsylvania and West Virginia have cut break-even costs by half since 2008, according to Oppenheimer & Co. Drilling more wells at one site and extending the length of horizontal wells are among the efficiencies that have helped gas companies cope with falling prices. The EIA expects Marcellus to climb to about 20 percent of production in the lower 48 states from about 2 percent in 2007. Cabot Oil & Gas Corp., the biggest Marcellus producer, plans to increase output by at least 20 percent this year. "The Marcellus has been a game changer in terms of production, reserve potential, everything," said Fadel Gheit, a senior energy analyst for Oppenheimer & Co. in New York. "They are not waiting for higher gas prices to bail them out."

OPEC Leader: Oil Could Shoot Back to $200

[CNN Money, Feb. 3] Right now the oil market is totally focused on finding a bottom for oil prices. However, according to OPEC's Secretary-General Abdulla al-Badri we've already hit bottom. Not only that, but he sees a real possibility that oil prices could explode higher to upwards of $200 per barrel in the future. He's far from the only one that sees a return of triple-digit oil prices. Finding a bottom: According to recent comments by the Secretary-General when he was in London, the oil market doesn't need to look for oil prices to bottom as the market has already bottomed. Instead, he offered quite bullish comments by saying, "Now the prices are around $45-$55, and I think maybe they [have] reached the bottom and we [will] see some rebound very soon." Normally that type of remark would be just another layer of noise, but this is coming from OPEC's Secretary-General so it comes with a lot of weight behind it.

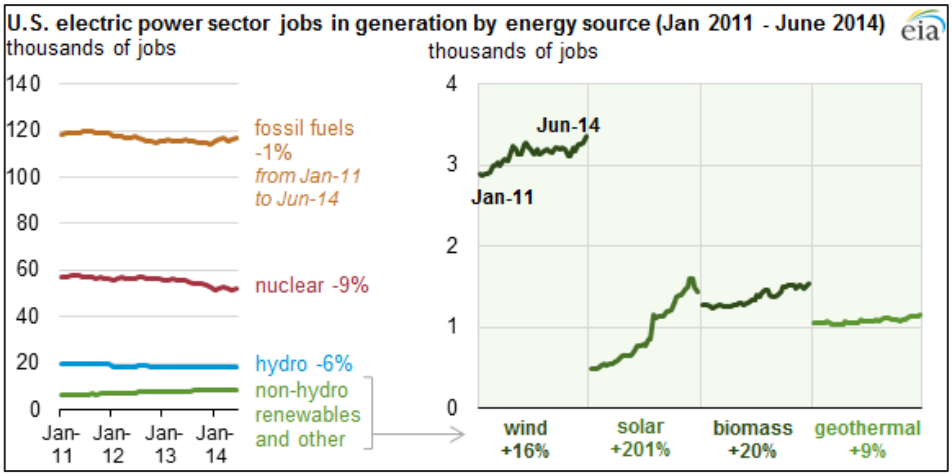
U.S. Trend Toward Sustainable Energy Continued in 2014

[Electric Light & Power, Feb. 5] The United States saw continued growth in renewable energy, natural gas and energy efficiency in 2014, according to the third annual Sustainable Energy in America Factbook. The Factbook shows that U.S. deployment of sustainable energy increased as prices continued to fall and that investment in U.S. clean energy grew at a higher rate. Analysts at Bloomberg New Energy Finance found that "over the 2007-2014 period, U.S. carbon emissions from the energy sector dropped 9 percent, U.S. natural gas production rose 25 percent and total U.S. investment in clean energy (renewables and advanced grid, storage and electrified transport technologies) reached $386 billion." "The 2015 Factbook clearly shows that America is on the path to a more sustainable energy sector," said Lisa Jacobson, President of the Business Council for Sustainable Energy. "Our energy productivity is rising

along with economic growth, while energy-intensive industries are onshoring production to the United States to take advantage of low energy costs. All of this is happening as investment in clean energy continues to grow and as new natural gas infrastructure continues to come online. These are strong positive signs for America's economy and environment." Key trends in sustainable energy growth include: The U.S. economy is becoming more energy productive, with "an outright decoupling between electricity growth and economic growth." Between 1990 and 2007, electricity demand grew at an annual rate of 1.9 percent while, between 2007 and 2014, annualized electricity demand growth has been zero. Meanwhile, over those past seven years, the U.S. economy has grown by 8 percent.

INDUSTRIES AND TECHNOLOGIES

Employment in Power Sector Declines, Except for Renewable Generators



[Power Engineering, Feb. 4] According to the latest data available from the Bureau of Labor Statistics (BLS) as published on the website of the U.S. Energy Information Administration (EIA), the electric power generation sector lost more than 5,800 jobs from January 2011 to June 2014, despite a gain of nearly 1,800 non-hydro jobs in the renewable energy sector. The BLS data reflects only jobs in electric power generation, and does not include jobs associated with electric transmission and distribution systems. Also not counted are jobs involved in the construction of new facilities, processing or transportation of fuels, and behind-the-meter distributed generation installations and services (e.g., solar panel installers). The overall decline in electric power generation jobs coincides with a period in which the United States has seen declining year-over-year electricity sales, driven by energy efficiency improvements and growth in distributed generation such as behind-the-meter rooftop solar, among other factors. Additionally, the growth in some types of non-hydro renewable generation, particularly wind and solar, brings relatively few ongoing operations and maintenance jobs.

Grid Sensors Could Ease Disruptions of Power

[New York Times, Feb. 3] For decades, utility companies have relied on customers telling them when their lights have gone off as a sign that there may be a broader power disruption. The utilities then send workers to drive along mile after mile of power lines, looking for tiny devices — little red circular tabs — that have popped up, signaling the source of the problem in the network. That approach could now be on its way out as the electrical grid becomes smarter. Utilities across the country are experimenting with new sensor and communications systems that can monitor the flow of electricity and pinpoint failures more quickly and, perhaps, even help avoid them. Last summer, over a stormy Fourth of July weekend in Pennsylvania, where Orange & Rockland Utilities is using a system from Tollgrade Communication, electric company workers were able to figure out where there was trouble on a line and send repair crews out before any customers called them. In another case, the system helped workers locate and fix a faulty part, avoiding a larger problem. “Eventually, whatever was failing inside would have probably have failed catastrophically,” said Francis W. Peverly, Orange & Rockland’s vice president for operations. With the system, he added, “We can really narrow the area of investigation when an event takes place.” The flow of current along the high-voltage transmission lines that cross the country is well monitored, and the growth of smart meters has

increasingly allowed utilities to read when the power goes down at individual homes, experts say.

Industry Survey Explores Job Creation, Property Taxes and Additional Economic Benefits of Geothermal Energy

[RenewableEnergyWorld.com, Feb. 5] Washington, D.C. – According to the U.S. Energy Information Agency, geothermal power is a long-term consumer bargain for the western power grid. New information based on a survey of the U.S. industry and released by the Geothermal Energy Association (GEA) explores the economic benefits geothermal facilities bring to communities where they operate. GEA reports substantial revenues from taxes and royalties to state and local governments, long-term local employment and millions of dollars in environmental benefits. "The Additional Economic Benefits of Geothermal Energy" found: • In 2013, geothermal power producers paid $29 million dollars in annual property taxes, including $21 million dollars to the State of California. • A 50-MW geothermal plant will require 310 person-years of construction and manufacturing employment. • An average 50-MW facility will create permanent employment for about 100 people. Properly developing the remaining identified geothermal resources estimated by the U.S. Geologic Survey to exist in the State of California alone could add 2,500 permanent on-site jobs, another 20-30 million dollars in property tax revenue for the state and almost 15,000 construction and manufacturing jobs.

The Promise of Small Modular Reactors

[Power Engineering, Feb. 5] Just a few short years ago, small modular reactor (SMR) technology was gaining increased attention from not just the nuclear industry, but also the power generation industry as a whole. Following the accident at Fukushima, and at a time when it looked like new large-scale nuclear power would be too expensive and time-consuming to build, SMRs were seen as the next big thing to bring safe and reliable power to the U.S. grid as utilities planned retirements of both nuclear and fossil-fueled power plants. While countries such as Russia, India, Pakistan and China have all made great strides in developing and using SMRs either for research or in innovative projects like floating power plants, the U.S. has lagged behind in SMR development. The US Department of Energy defines SMRs as reactors that are 300 MW or smaller in capacity, and can be manufactured in a factory and delivered and installed at the site in modules. The NuScale design includes an integrated steel containment vessel with the reactor vessel inside, and no field-built containment building. It is installed underground, within a reactor building designed to protect against aircraft impact, and inside an 8-million gallon pool, along with as many as 11 additional 50-MW NuScale Power Modules. The pool serves as the ultimate heat sink and all normal operation and emergency cooling operations are accomplished with natural circulation to drive the coolant flow. In a Fukushima-like station blackout event the NuScale plant can shut down and self-cool indefinitely with no operator action, no additional water and no source of electricity (AC nor DC). NEI breaks down SMRs into three reactor designs: light water, high-temperature gas-cooled, and liquid metal and gas-cooled fast reactors. Each design has its own benefits, and reactors of each type have been developed with varying degrees of success.

LEGISLATION AND REGULATION

EPA Wants Keystone XL Reevaluated in Light of Low Oil Prices

[Fierce Energy, Feb. 4] The Environmental Protection Agency (EPA) has called for a second look at the controversial Keystone XL pipeline because today's low oil prices could have "implications" that would change previous assessments of the projects impacts, particularly greenhouse gas emissions. EPA is referring to earlier studies and assessments made by the State Department when oil prices were higher than they are today. EPA's judgment that a review was needed came in the form of a letter dated February 2 from an EPA official addressed to two State Department officials regarding State's earlier assessments. Needless to say, EPA's call for a review of assessments made when oil prices were higher did not sit well with Keystone officials and supporters in the oil industry.

ITC Permanency, Faster Carbon Law Passing Requested in White House Budget

[Power Engineering, Feb. 3]President Obama proposed to make the investment tax credit (ITC) permanent as part of his fiscal year 2016 budget request. The President's budget request calls for an increase to $7.4 billion from $6.9 billion for clean energy and $4 billion to encourage states to accelerate carbon reduction plans. The ITC is expected to decrease from 30 percent to 10 percent at the end of 2016. The budget request also calls for the permanent extension of the production tax credit, which is used for wind energy. The ITC was first enacted

in 2006. In the past four years, the solar industry employs 175,000 workers and brings $15 billion a year into the U.S. economy, according to the Solar Energy Industries Association (SEIA).

Loan Guarantees a Shot in the Arm for U.S. Nuclear

[Power Engineering, Feb. 5] "Loan guarantees" at one point were a four-letter word in the energy industry. With the issues that plagued solar manufacturer Solyndra and flywheel storage developer Beacon Power after they received loan guarantees from the government, many in the public and the industry were emphatically against the loan guarantee program and were content with it disappearing despite the numerous successful projects that also received loan guarantees. One example is Georgia Power's 2,200-MW nuclear expansion project at Plant Vogtle in Georgia. The U.S. Department of Energy's Loan Program Office (LPO) has funded $8.33 billion for the two Westinghouse AP1000 reactors under construction. The LPO announced that it was opening another solicitation for $12.6 billion to support innovative nuclear projects as part of President Obama's "all of the above" energy strategy. Innovative nuclear includes the aforementioned AP1000 reactors and small modular reactors, as well as uprates and upgrades and front-end nuclear fuel cycle projects. "The loan guarantee is reflective of what is going on in the nuclear industry," said Peter Davidson, executive director of the LPO. "We have designed the solicitation around the activity we're seeing in the marketplace, so it's for traditional new reactors like the AP1000, but we're also looking at small modular reactors." Financing for advanced technologies and processes is a welcome advent in the industry, and was mentioned during our Nuclear Executive Roundtable. Technology developers and utilities are lamenting the lack of financing available to help push the industry forward. David Sledzik, vice president of Product Management & International Nuclear Plants with GE Hitachi Nuclear Energy, said the money helps the industry stay one step ahead of global competition. "Loan guarantees are huge for the U.S. market, and the DOE grants and the DOE advanced reactor cost-share opportunities that come out annually are huge," Sledzik said. "Those help us move new technology forward so that we can stay ahead of our competition, stay ahead in nuclear technology across the globe."

Senator: U.S. Must Avoid Losing All Nuclear Power Generation

[Power Engineering, Feb. 5] U.S. Sen. Lamar Alexander (R-Tennessee) announced a series of year-long hearings in which the Appropriations Subcommittee on Energy & Water Development will look into the future of nuclear power in the nation. Alexander said the subcommittee will begin expanded oversight with budget hearings in February and March, then turn to a series of hearings in April about the future of nuclear in the U.S. and what the country would be like without nuclear power. There would be hearings on nuclear waste, energy research, nuclear vs. renewables, and energy reliability. In his speech, Alexander laid out three incidents that show the impact of shutting down nuclear compared to building new nuclear. Alexander said that in Japan, where all 48 nuclear reactors shut down after the 2011 Fukushima accident, the cost of generating electricity has increased 56 percent since 2011.

West Virginia Becomes First State To Repeal RPS

[American Legislator, Feb. 4] Earlier this week West Virginia's Governor Earl Ray Tomblin signed House Bill 2001, making the state the first in the nation to repeal its alternative energy mandate. The bipartisan proposal sailed through both chambers of the West Virginia Legislature earlier this month, passing unanimously in the Senate and by a vote of 95-4 in the House of Delegates. West Virginia's mandate required utilities to generate at least 25 percent of electricity with renewable or alternative sources by 2025. Although unlikely to happen, the mandate could technically be achieved in full by only using fossil fuel-based alternative energies. Consequently, many viewed the state's renewable standard as a non-binding goal.

WESTERN POWER

Alternative Energy Taking Hold, to Nevada's Benefit

[KTVN.com, Feb. 3] We've heard for years that cheap energy may lie right under our feet, or from the sun. Reno is a Saudi Arabia in one kind of energy: geothermal. Josh Nordquist of Ormat Technologies told us, "The best part of geothermal is that it's there all the time. It's sustainable, base-load and reliable." Northern Nevada is ranked number one in the nation when it comes to installed geothermal energy. It's all closer to the surface here. Geothermal is hotter than ever, pardon the pun. The process is simple. As Nordquist put it, "Geothermal fluid processes through our plant and generates power." All geothermal energy needs is heat close to the surface, fractures and deep underground water to convert to steam. Reno has all 3, a

perfect place for the Ormat nerve center at south Virginia and the Mt. Rose Highway, producing most of Reno's geothermal. But even this just scratches the surface. Nordquist told us, “We suspect there's at least 1,500 megawatts of untapped potential that has not already been captured by developers existing today. That would power up to 1.5 million homes in Nevada."

California's Clean Tech Industry Best in US for Jobs and Investment

[Renewable Energy World, Feb. 3] SAN FRANCISCO – California’s bet on green energy is paying off, with clean technology companies creating more jobs and investing more money than competitors in any other state. As Governor Jerry Brown pushes the nation’s largest state to wean itself from fossil fuels, that policy also is rewarding investors. Shares of California companies in the NYSE Bloomberg Americas Clean Energy Index will climb 96 percent in the next 12 months, compared with the 47 percent forecast for all U.S. members, according to data compiled by Bloomberg. California, which is poised to become the world’s seventh-largest economy, is setting the pace for U.S. energy policy, with Brown recently announcing the nation’s highest renewable-power targets and most ambitious electric vehicle goals. The Democratic governor said the technology industry is responding to his challenge. “California energy policies are a road to real innovation that will drive business investment and development, in California and throughout the rest of the country,” Brown said in a Jan. 15 interview in his Oakland office. California has little access to oil pipelines and its crude oil reserves are dwindling. The combination of its climate change science culture and rejection of carbon fuels has resulted in a booming clean-technology industry. The 26 California companies in the Clean Energy Index, including Elon Musk’s electric carmaker Tesla Motors Inc. and rooftop solar giant SolarCity Corp., have added employees at a median annual rate of 9.5 percent for the past two years. That’s more than quadruple the 2.3 percent for the 115 U.S.-based companies in the index.

ARIZONA STATE INCENTIVES/POLICIES

ARIZONA COMMERCE AUTHORITY (ACA)

- **INCENTIVES**

Arizona has lowered taxes, streamlined regulations, and established a suite of incentives to support corporate growth and expansion. The Arizona Competitiveness Package, groundbreaking legislation adopted in 2011, makes it easier for existing Arizona companies to prosper and establishes Arizona as one of the most desirable places for expanding companies to do business. Give your company a competitive edge by utilizing Arizona’s incentives.

- Job Training
- Quality Jobs
- Qualified Facility
- Computer Data Center Program
- Research & Development
- Foreign Trade Zone
- Military Reuse Zone
- Angel Investment
- Renewable Energy Tax Incentive
- Healthy Forest
- Sales Tax Exemption for Machinery and Equipment
- Lease Excise
- Additional Depreciation
- Work Opportunity
- Commercial/Industrial Solar
- SBIR/STTR
- Private Activity Bonds
- QECB’s

- **(ACA) PROGRAMS**

- **DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (DSIRE)**

- Arizona Incentives/Policies
- Federal Incentives/Policies
- Solar Policy News

  DSIRE provides summaries of current solar policy developments and an archive of past solar policy developments. Current solar news appears below the news archive, which is searchable by several criteria.

GRANTS

Students – Geothermal Resources Council (GRC) – The GRC presents news and information for students in the global geothermal community. There are some great opportunities for student scholarships in geothermal. For more information, visit the link below. You will find "Scholarships" half way down the page.

Website: http://www.geothermal.org/students.html

The following solicitations are now available:
(Click on title to view solicitation)

- Buildings University Innovators and Leaders Development (BUILD) - 2015 – Close Date 02/11/2015
- Powering Agriculture: An Energy Grand Challenge for Development (AID-SOL-OOA-00005) – Applications accepted between 12/7/2014 through 2/12/2015
- Advanced Research in Dry-Cooling (ARID) (DE-FOA-0001197) – Applications due 2/13/2015
- Infrastructure Management and Extreme Events (PD-15-1638) – Application Due Date: 2/17/2015
- National Institute of Food and Agriculture Tribal Colleges Research Grant (USDA-NIFA-TCRGP-004795) – Applications due 2/20/2015
- DE-FOA-0001201: Fiscal Year (FY) 2015 Vehicles Technologies Program Wide Funding Opportunity Announcement – Concept Paper Submission Deadline: 2/26/2015 8:00 PM ET, Full Application Submission Deadline: 4/10/2015 8:00 PM ET
- DE-FOA-0001261: OPEN 2015 – Submission Deadlines: Notice of Intent Deadline: 2/20/2015 5:00 PM ET, Concept Paper Submission Deadline: 2/27/2015 5:00 PM ET, Full Application Submission Deadline: TBD
- Thermal Transport Processed (PD-14-1406) – Application due 2/20/2015 and 10/20/2015
- Student Program for Environmental Excellence in Design (SPEED) (EPA-OAR-OTAQ-15-02) – Application Due Date: 2/22/2015
- U.S. Department of Agriculture – Phase II (USDA-NIFA-SBIR-004815) – Applications due 2/26/2015
- The Resilient Electricity Delivery Infrastructure (REDI) Initiative (DE-FOA-0001219) – Application Due Date: 3/04/2014
- EPA-EE-14-02 - Environmental Education Local Grants Program – Close Date: 3/06/2015
- Physics of Reliability: Evaluating Design Insights for Component Technologies in Solar 2 (PREDICTS2) – Close Date: 3/12/2015
- Sustainable and Holistic Integration of Energy Storage and Solar PV (SHINES) Close Date: 3/19/2015
- Desalination and Water Purification Research and Development (DWPR) (R15AS00019) – Application Due Date: 4/27/2015
- Desalination and Water Purification Research and Development (DWPR) Pilot

(R15AS00021) – Application Due Date: 4/27/2015

- American Apprenticeship Initiative (FOA-ETA-15-02) – Application Due Date: 4/30/2015
- Flexible Hybrid Electronics Manufacturing Innovation Institute Grant (BAA-RQKM-2015-0014) – Applications due 5/29/2015
- Advanced Frontiers in Renewable Hydrogen Fuel Production via Solar Water Splitting Technologies – Letter of Intent due 10/7/2015
- Land and Water Conservation Fund State and Local Assistance Program – Application Due Date: 08/11/2015
- Landscape Design for Sustainable Bioenergy Systems (DE-FOA-0001179) – Concept Paper due 11/21/2015
- Repowering Assistance Program - Ongoing
- Rural Business Enterprise Grants - Ongoing
- Rural Business Opportunity Grants – Ongoing
- Sunshot Catalyst Prize (DE-FOA-0001126) - Applications Accepted on a Continuous Basis - The U.S. Department of Energy SunShot Catalyst is an open innovation program that allows the public to rapidly create and develop products and solutions that address near-term challenges in the U.S. solar marketplace through prize challenges.
- Sustainable Agriculture Research and Education Grants - Ongoing
- Renewable Energy RFP's - Solicitations for Renewable Energy Generation, Renewable Energy Certificates, and Green Power – Various Deadlines
- U.S. Dept. of Agriculture - Rural Development Grant Assistance
- Green Refinance Plus – Ongoing
- National Science Foundation Funding Opportunities